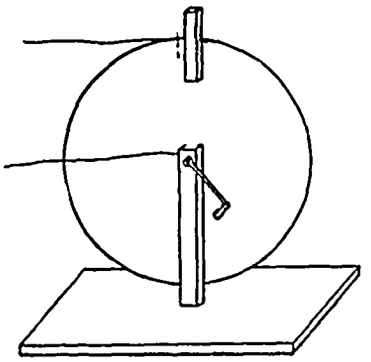
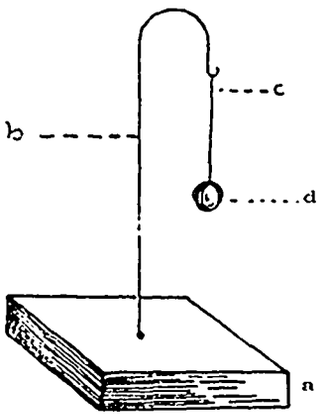
query "why?" Here are two very simple things, a rubber needle and a bit of flannel, and by them I have generated a force strong enough to overcome the entire force of gravity. The whole earth is holding these bits of paper to its bosom; I, like a magician, wave my wand above them, and they spring to obey its summons. By what means is this effect produced? *Friction has electrified my wand*, that is, it has acquired the temporary property of attracting to itself light bodies.



"Here is a piece of gum-shellac, here a rod of sulphur; I treat them as I did the bit of glass and rubber and I see that they too acquire the magic power. *Amber*, such as I see in Ida's pin, was called by the Greeks *Electron*, which shows that the ancients knew of the existance of such a force. We have gone a few steps farther than they, but we have not gone so far that we are all agreed as to the right defining name of this strange something which, in honor of the old Greeks, we call *Electricity*. Many names have been given it, but if you think of it and speak of it as a *fluid*, you will be able to experiment with it quite as successfully as you would under any other name. Remember this one thing, that no body yet treated by friction, has failed to become electrified."

Miss Murray then showed us a PITH-BALL ELECTROSCOPE, which she said was valuable for indicating the presence of smaller quanties of electricity, because with this the force of gravity need not be overcome. This is what it looks like :—



a..is a block of wood.

b.. " brass wire.

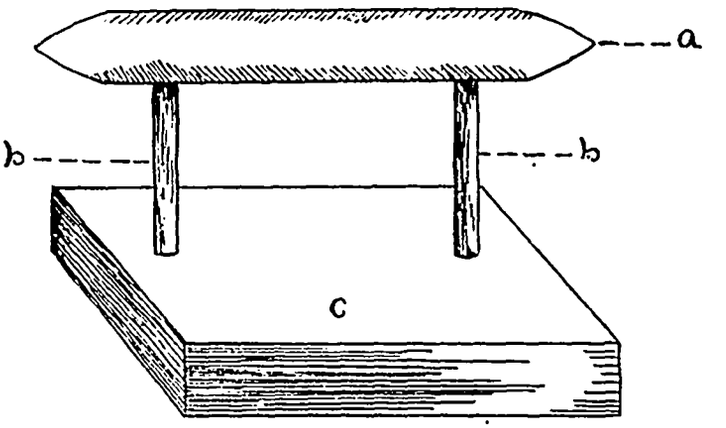
c.. " silk thread.

d.. " ball made of the pith of the willow.

She said that pith was chosen because it was so very light in weight.

Then the rubber rod was taken and rubbed briskly *at one end*; that end was held near the pith-ball, which immediately moved toward it. Then the other end of the rubber rod—the end which had not been rubbed—was held toward the pith ball, but it hung at the end of its silk thread as indifferently as if it had never moved in its life. Wasn't that strange? The end which had been rubbed attracted the pith ball, the remainder of the rod did not.

The next thing Miss Murray showed us was an insulated metal bar, like this :—



a..a metal bar about eight inches in length.

b b..hard rubber rods (insulators).

c..block of wood.

One end of this bar was then electrified and presented to the pith-ball.

The whole length of the bar was then moved slowly along at the same distance from the little pith-ball, and the silken thread strained toward it without once faltering. So we saw that the whole length of the bar had the attractive power which had been bestowed but upon one end! We compared the effect of these two experiments, and inferred that the electric fluid could not have travelled along the surface of the rubber rod, while it must have done so on the metal bar.

"Now," said Miss Murray, "you may infer that all bodies may be divided into two classes. First, those which do not allow electricity to pass through or over their substance; such bodies are called *non-conductors* or *insulators*; second, those bodies which *do* allow the electric fluid to pass through or over their substance. These are called conductors. These terms of course, are relative; there is no such thing as a *perfect* conductor, nor is there a *perfect* insulator.

"These are a few of the best non-conductors—glass, gum-shellac, sulphur, hard rubber, hair, silk, etc., etc.

"These, some of the best conductors—all *metals*, water, the human body, and the earth in general. Electricity is of two kinds: positive and negative. That developed by rubbing glass with Keinmier's Amalgam, is called the vitreous or *positive* electricity, and has this for its sign + + + +.

"That developed by rubbing amber with flannel is called resinous or *negative* electricity, with this for its sign — — — —."

Just at that point the "go-to-bed bell" rang, and we put our note-books in our pockets, said good-night to Miss Murray and thanked her fc. her invitation to come again the following Wednesday.